COMPAQ

IDE CD-ROM Drive for Servers and Workstations

Installation and User Guide

Second Edition (November 1997)
Part Number 242699-002
Compaq Computer Corporation

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About This Guide

This User Guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
FILENAMES	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These always appear in uppercase
Type	When you are instructed *to type* information, type the information **without** pressing the **Enter** key.
Enter	When you are instructed *to enter* information, type the information and then press the **Enter** key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

WARNING: Indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

CAUTION: Indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Presents clarifying information or specific instructions.

NOTE: Presents commentary, sidelights, or interesting points of information.

Product Safety Information

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.

Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.
WARNING: To reduce the risk of injury from electrical shock hazards, do not open this enclosure.

Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection.
WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.

Power Supplies or Systems marked with these symbols indicate the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.

Laser Precautions

WARNING: To reduce the risk of injury from laser radiation or damage to the equipment, observe the following precautions:

- Allow only Compaq Authorized Service Technicians to repair the equipment.
- Do not open any panels, operate controls, make adjustments, or perform procedures to a laser device other than those specified herein.
- Do not stare into laser beam when panels are open.

Rack Warnings and Precautions

Before beginning these procedures, make sure you understand the following warnings and caution:

WARNING: To reduce the risk of personal injury, always ensure that the rack is adequately stabilized before extending a component outside the rack. A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.

WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizers are attached to the rack if it is a single rack installation.
- The racks are coupled together in multiple rack installations.

Interlock Switches

WARNING: To reduce the risk of personal injury from contact with hazardous energy, the equipment is provided with a safety interlocks. Do not try to defeat these safety interlocks. If an access cover is removed, the power supply is disabled until the cover is properly replaced.

Compaq ProLiant 3000, 5000, 5500, 6000, 6500, and 7000 Servers contain built-in interlock switches. This feature:

- Automatically turns the power off when you remove the server side or top covers ensuring your personal safety.
- Protects thermally sensitive components by providing optimal air flow throughout the unit; therefore, removing this cover turns the power off to prevent any undesirable temperature conditions that could result in damage to the equipment.

The interlock switch does not limit access to the hot-pluggable SCSI drives and power supplies. Do not attempt to bypass or defeat this device.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Web Site

The Compaq Web Site has information on this product as well as the latest drivers and Flash ROM images. You can access the Compaq Web Site by logging on to the Internet at http://www.compaq.com.

Telephone Numbers

For the name of your nearest Compaq Authorized Reseller:

In the United States, call 1-800-345-1518
In Canada, call 1-800-263-5868
For Compaq technical support:
In the United States and Canada, call 1-800-386-2172

Elsewhere, call one of the numbers listed in the following table.

Compaq Worldwide Technical Support Telephone Numbers

Location	Voice	FAX
APD	65-7503030	65-7504909
Argentina	54-1 313 3100	54-1 313 3100 Ext 21
Australia	61-2-9911-1955	61-2-9911-1900
Austria	0222-87816-16	0222-87816-82
Bahrain	973-210-214	
Belgium	(02) 716-96-96	(02) 725-22-13
Brazil	55 11 5505-3600	55 11 5505-3922 Ext 4336
Canada	1-800-386-2172	
Caribbean	1-800-345-1518	
Central America	281-378-2206	
Chile	562-274-3007	
China	86-10-834-6721	86-10-834-6713
Colombia	571-345-0266	571-312-0157
Czech Republic	42-2-232-8772	42-2-232-8773
Denmark	45-90-4545	45-90-4595
Ecuador	593-2504540	

continued

Compaq Worldwide Technical Support Telephone Numbers *continued*

Location	Voice	FAX
Europe/Middle East/Africa	(49) 089-9933-2891	
Finland	9800-206-720 (+358-800-1-206720)	90-6155-9899 (+358-0-61559899)
France	(33 1) 41-33-4455	(33 1) 41-33-4263
Germany	0180-5-212111	089-9933-3399
Hong Kong	852-90116633	852-28671734
Hungary	36-1-201-8776	36-1-201-9696
India	(91-80) 559-6023	
Italy	392-57-90300	392-575-00686
Japan	0120-101589	+81 3-5402-5959
Korea	82-2-523-3575	82-2-3471-0321
Malaysia	(603) 718-1636	
Mexico	(525) 229-7910	(525) 229-7988
Netherlands	06-91681616	06-8991116
New Zealand	649-307-3969	
Norway	22-072-020	22-072-021
Poland	48-2-630-3535	48-2-630-3553
Portugal	351-1-4120132	351-1-4120654
Singapore	65-7503030	65-7504909
South Africa	+27-11-728-6999	+27-11-728-3335
Spain	341-640-1302	341-640-0124
Sweden	(46) 8 703 5240	(46) 8 703 5222
Switzerland	411 838 410/2222	01-837-0969
Taiwan	(886) 2-3761170	(886) 2-7322660
Thailand	62-2-679-6222	62-2-679-6220
United Kingdom	44-81-332-3888	44-81-332-3409
United States	1-800-386-2172	1-800-345-1518
Venezuela	(582) 953.69.44	(582) 952.86.70

Chapter 1
Introduction

The Compaq IDE CD-ROM Drive is a 5.25-inch, half-height, compact disc read-only memory (CD-ROM) drive with an integrated drive electronics (IDE) interface. The drive is a random access, read-only storage device capable of retrieving data from removable compact disc media. The compact discs designed for this drive can store as much as 650 megabytes of digital information.

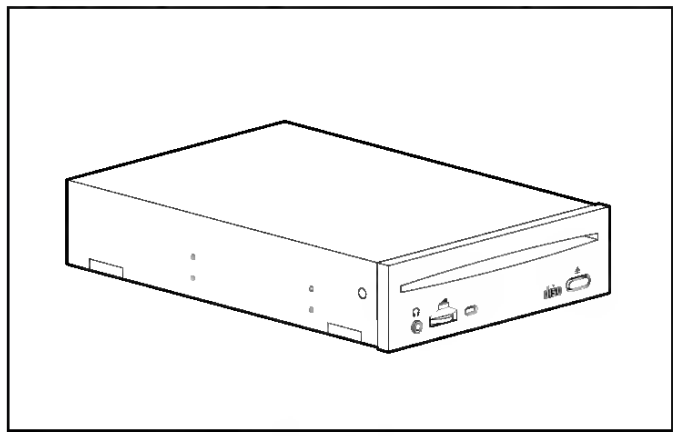


Figure 1-1. Compaq IDE CD-ROM Drive

Several vendors are used to source drives manufactured as Compaq IDE CD-ROM drives. Because of this, the drive you receive may appear slightly different from the drive portrayed in this guide. All drives are, however, identical in capability and operation, and each drive has been thoroughly tested for use in Compaq systems.

Features

Special features of the drive include:

- 150-millisecond access time
- Slot load
- Operation in horizontal or vertical orientation
- Dust-proof enclosure
- Layered error correction
- Two-way slot load/unload operation: host (software) and button (manual)
- MPC 2 (Multimedia Personal Computers) compatibility

Compatibility

The Compaq IDE CD-ROM Drive operates under most industry-standard system software, including products from Novell, Microsoft, SCO, and IBM.

The drive is compatible with industry-standard ISO 9660, MPC (Multimedia Personal Computers) 2, and High Sierra logical formats. It can read:

- CD-Digital Audio (CD-DA)
- CD-ROM (Mode 1 and Mode 2)
- CD-ROM XA Ready (Mode 2, form 1 and form 2)
- CDi Ready
- Photo CD discs (single- and multi-session)

Front Panel Controls

The front panel controls for an optional Compaq IDE CD-ROM Drive are indicated as follows:

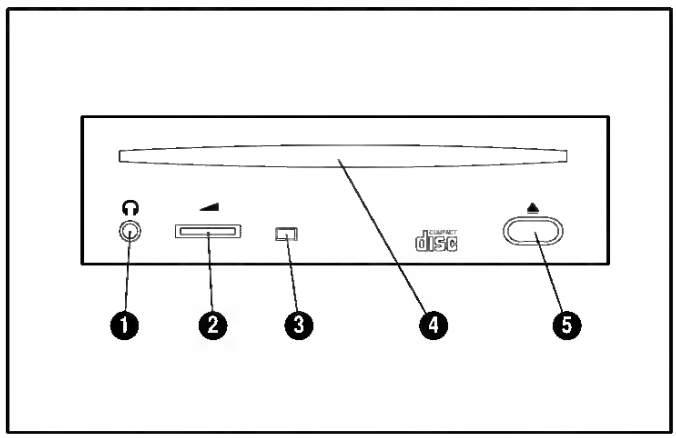


Figure 1-2. Front Panel Controls on a Compaq IDE CD-ROM Drive

Table 1-1
Front Panel Controls for a Compaq IDE CD-ROM Drive

Ref	Component	Function
❶	Headphone Jack	Connects the headphone
❷	Headphone Volume Control	Increases or decreases the headphone volume
❸	Busy Indicator	Flashes amber when the drive is reading a CD
❹	Disc Slot	Slides in and out. Holds the CD in place
❺	Eject Button	Ejects the disc

Rear Panel Components

While the front panel controls are identical on all drives, some features on the rear panels may vary.

The following illustrates the general arrangement of rear panel components for an optional Compaq IDE CD-ROM drive. The drive you receive may differ slightly.

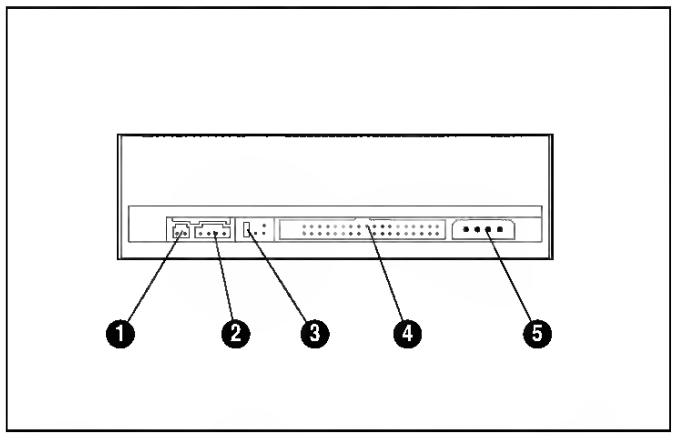


Figure 1-3. Rear Panel Components on a Compaq IDE CD-ROM Drive

Table 1-2
Rear Panel Components for a Compaq IDE CD-ROM Drive

Reference	Component
❶	Two-pin digital audio connector *
❷	Analog audio connector
❸	Jumpers
❹	IDE signal connector
❺	Power connector

Chapter 2
Installing an Optional CD-ROM Drive

This chapter outlines general instructions for installing an optional Compaq IDE CD-ROM Drive in a generic Compaq system. For more information on installation in your particular system, see the documentation that was shipped with your unit.

Since several vendors are used to source Compaq IDE CD-ROM drives, the drive you receive may appear slightly different from the drives portrayed in this guide. All drives are, however, identical in capability and operation, and each vendor's drive has been thoroughly tested for use in Compaq systems.

Tools Needed

To install this drive in a system, you will need the following tools:

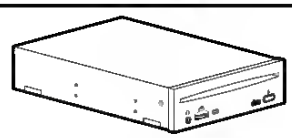
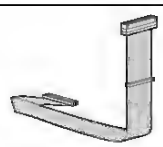
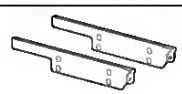
- Torx T-15 screwdriver
- Torx T-10 screwdriver

Components Included in the Option Kit

In addition to this guide, the following hardware components are included in the option kit. If any of these items are missing, contact an authorized Compaq dealer, reseller, or service provider.

In addition to the listed components, your kit may also contain some product-specific components. Read any included reference cards and check your kit contents carefully to determine if your system needs a product-specific component.

Table 2-1
Components in the CD-ROM Drive Option Kit

Illustration	Name
	Compaq IDE CD-ROM Drive
	18- and 26-inch 2-Device IDE Interface Cables
	1 pair of Mounting rails
	Four rail-attaching screws (M3 x 0.0-5L slotted Torx Taptite pan head)
	Two drive-retaining screws (6-32 x ¼ TF, HI/TP w/serr)

Recommended Configurations

Built-in IDE controllers are designated as primary and secondary. Each primary and secondary controller can support two IDE devices. If your system supports 2 IDE controllers, a total of 4 IDE devices can be installed in your unit.

- The recommended configuration is to install the CD-ROM drive on the secondary IDE controller.
- If no hard drive is connected to the secondary IDE controller, attach the CD-ROM drive to the device 0 connector on the secondary IDE controller signal cable.
- If a hard drive is already connected to the secondary controller, the CD-ROM drive must be attached to the device 1 connector on the IDE controller signal cable.
- A preinstalled hard drive that is connected to the built-in (primary) IDE controller is typically set as device 0. If you want to connect an optional Compaq IDE CD-ROM Drive to the built-in (primary) controller, the CD-ROM drive jumpers must be set to the secondary/slave configuration.
- If you have only one IDE controller and already have 2 IDE devices connected, you must install a secondary IDE controller for this option.

Recommended configurations are shown in the following table. See Appendix D, "Getting Help," for information on how to contact Compaq or an authorized representative to order a second controller, if necessary.

Table 2-2
Recommended IDE Controller Configurations

Devices Installed	Controller	Connector	
One hard drive One CD-ROM drive	Primary	Device 0 Device 1	Hard drive CD-ROM Drive *
	Secondary	Not installed	
One hard drive One CD-ROM drive	Primary	Device 0 Device 1	Hard drive Not used
	Secondary	Device 0 Device 1	CD-ROM drive Not used
One hard drive Two CD-ROM drives	Primary	Device 0 Device 1	Hard drive Not used
	Secondary	Device 0 Device 1	CD-ROM drive CD-ROM drive
Two hard drives One CD-ROM drive	Primary	Device 0 Device 1	Hard drive Hard drive
	Secondary	Device 0 Device 1	CD-ROM drive Not used
Three hard drives One CD-ROM drive	Primary	Device 0 Device 1	Hard drive Hard drive
	Secondary	Device 0 Device 1	Hard drive CD-ROM drive

* This is not a recommended configuration. The better solution is to install a secondary IDE controller for the CD-ROM drive.

Installation Summary

Prepare the system by:

- Performing a normal system shutdown.
- Turning OFF the system and then all peripheral devices.
- Disconnecting the power cord from the outlet, then from the system and all peripheral devices.
- Preparing your system so that you have access to the removable media drive bays.

Refer to the documentation included with your system for detailed instructions on performing these tasks.

Once you have prepared the system, complete the following steps to install your optional IDE CD-ROM drive:

1. Set the jumpers on the CD-ROM drive.
2. Attach the drive rails.
3. Slide the drive into the bay and secure it.
4. Connect the IDE and power cables.

Installation Sequence

Step 1 - Setting the Jumpers

CAUTION: Electrostatic discharge (ESD) can damage electronic components. Be sure you are properly grounded before beginning this procedure. See Appendix B, "Electrostatic Discharge" for further information.

Make sure that the jumpers on the rear of the drive match the settings indicated in Table 2-3.

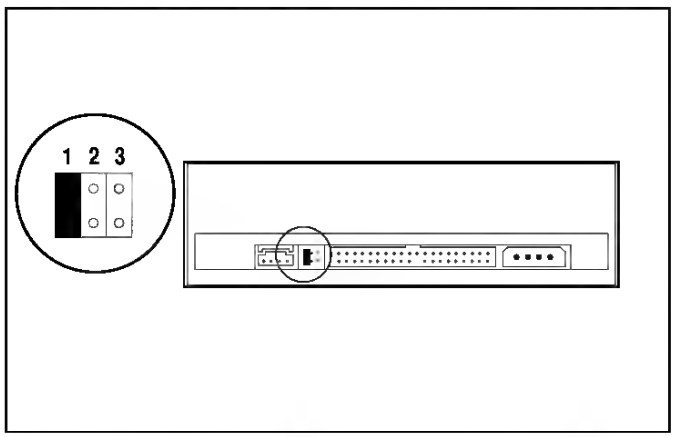


Figure 2-1. Default Jumper Setting on a Compaq IDE CD-ROM Drive

Table 2-3
Jumpers on a Compaq IDE CD-ROM Drive

Reference	Description	Setting
❶	CS - Cable select for device 0 or device 1	Enabled, installed over both pins
❷	SL - Device 1 (Secondary/slave device)	Disabled, not installed
❸	MA - Device 0 (Primary device)	Disabled, not installed

Although the Compaq IDE CD-ROM drive is set for cable select, the IDE Interface Cables included in this option kit **do not** support cable select. If you must use one of these cables, use the table above to set the jumpers on the drive to Device 1 (secondary/slave) or Device 0 (primary), as appropriate for your system.

Step 2 - Installing the Drive Rails

If your system requires drive rails, attach the two rails in this kit with the four screws provided (two screws for each side).

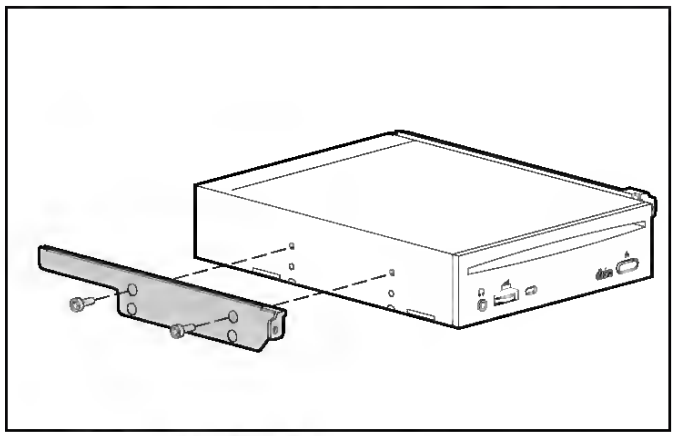


Figure 2-2. Attaching Drive Rails to a Compaq IDE CD-ROM Drive

Step 3 - Inserting the Drive

Horizontal Orientation

Position the drive on the drive guides, then slide it into the drive bay, as indicated.

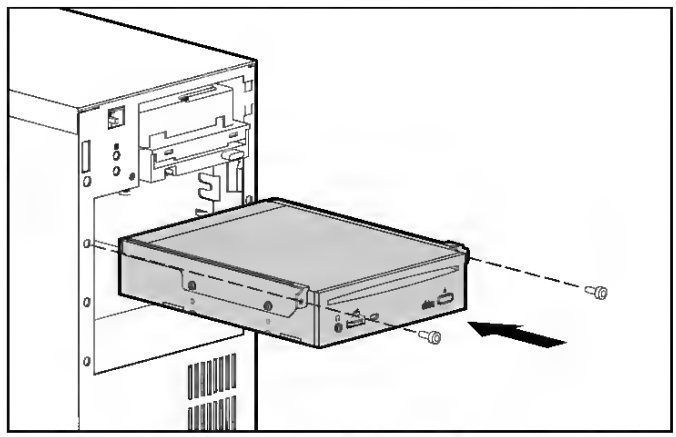


Figure 2-3. Inserting the CD-ROM Drive into a Horizontal Drive Bay

Vertical Orientation

Position the drive on the drive guides, then slide it into the drive bay, as indicated.

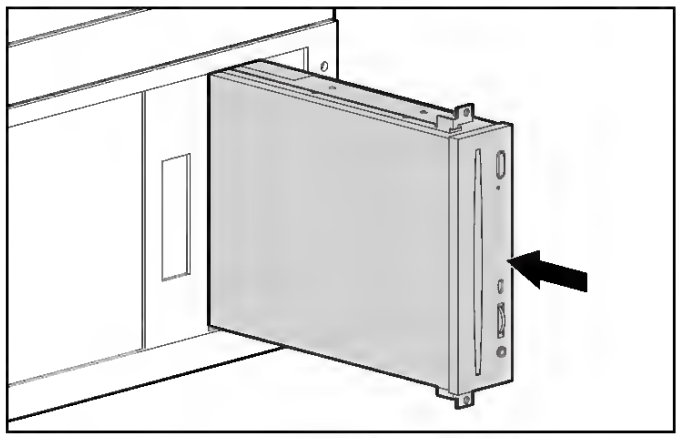


Figure 2-4. Inserting the CD-ROM Drive into a Vertical Drive Bay

Securing the Drive

Secure the drive to the computer with the 2 retaining screws provided in this kit, or with the retaining screws from the front bezel.

Step 4 - Connecting the Cables

If a 2-device IDE cable was not shipped with your system, use one of the 2-device IDE cables supplied with this kit to connect your IDE devices. These cables are identical, except in length. It is a good idea to save your 1-device IDE cable for future use.

Note the position of each connector on the IDE interface cable supplied with your kit, as indicated in Figure 2-5.

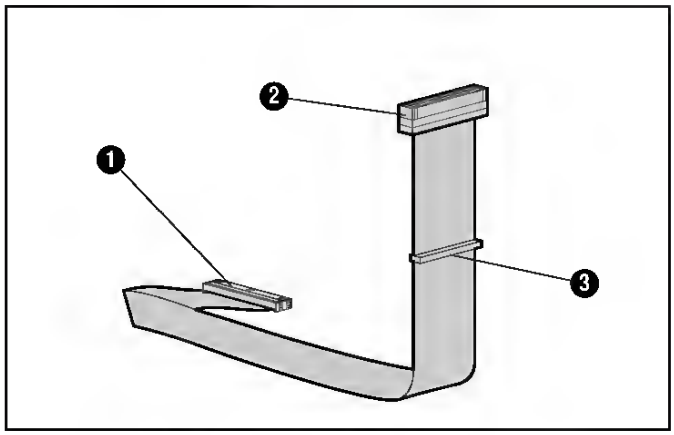


Figure 2-5. IDE Interface Cable Connectors

Table 2-4
IDE Interface Cable Connectors

Reference	Connector
❶	System board connector
❷	Secondary drive connector (Device 1)
❸	Primary drive connector (Device 0)

Connector ❷ is for the secondary drive (device 1); connector ❸ is for the primary drive (device 0).

Connect end ❶ to the system board. Connect the hard drive to cable connector ❸ and the CD-ROM drive to cable connector ❷.

Connect the power and IDE interface cables to the drive, as indicated in Figure 2-6.

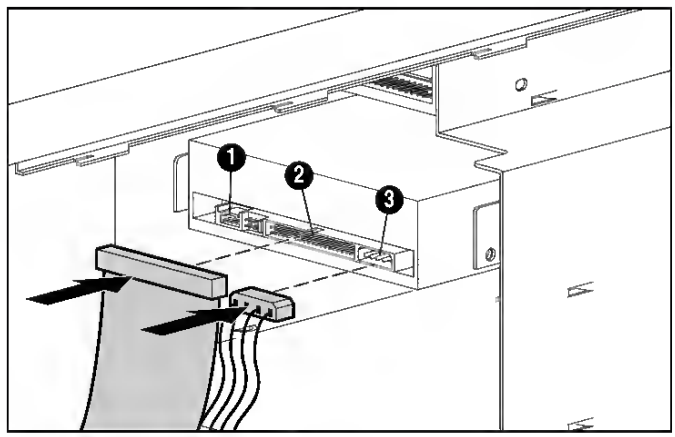


Figure 2-6. Connecting the Drive Cables

Table 2-5
Drive Cable Connections

Reference	Connector
❶	Audio connector
❷	IDE connector
❸	Power connector

If you are installing this IDE drive as the primary drive and your system has audio capabilities, attach the audio cable supplied with your system to the audio connector on the CD-ROM drive.

Completing the Installation

To complete the installation:

1. Reassemble your system according to the documentation that shipped with it.
2. Reconnect the peripheral devices to the system.
3. Plug the power cord into the computer, then into a properly grounded electrical outlet.

Configuring Your New Drive

No special driver or software support is needed if you are replacing a drive of the same type, or if you are installing a CD-ROM drive in addition to an existing drive of the same type. Run the System Configuration Utility according to the documentation provided with your system to make sure the drive has been recognized and properly configured.

If this IDE CD-ROM drive is of a different type than the one installed, or if it is a new IDE device, see Appendix D, "Getting Help," for information on how to contact Compaq or an authorized representative to determine if you need an additional driver for your system configuration.

The installation is now complete. See Chapter 3, "Operating the Drive," in this guide for instructions on how to use your IDE CD-ROM drive.

Chapter 3
Operating the Drive

This chapter outlines the basic functions of your new Compaq IDE CD-ROM Drive.

Front Panel Controls

The following controls are located on the front panel.

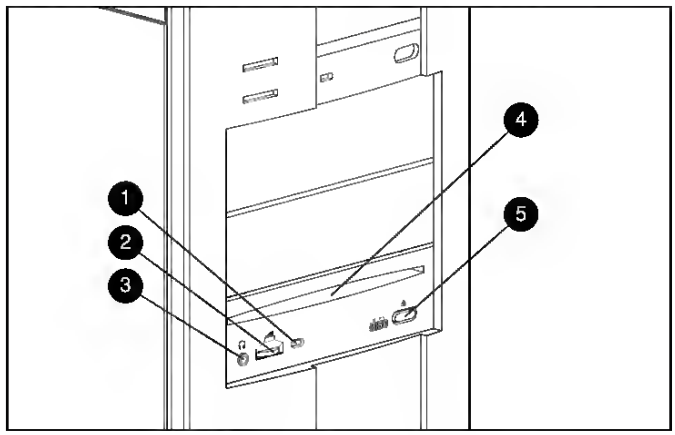


Figure 3-1. Front Panel Controls on a Compaq IOE CD-ROM Orive

Table 3-1
Front Panel Controls for a Compaq IDE CD-ROM Drive

Ref	Component	Function
❶	Busy Indicator	Turns amber when drive runs diagnostics
❷	Headphone Volume Control	Increases or decreases the headphone volume
❸	Headphone Jack	Connects the headphone
❹	Disc Slot	Accepts and ejects the CD-ROM disc
❺	Eject Button	Ejects the CD-ROM disc

Loading a Disc

Use the following steps to load a compact disc in the drive:

1. Turn on the computer. The busy indicator on the CD-ROM drive illuminates.
2. Holding the disc by the edges, not by the flat surfaces of the disc, slide it label side up into the drive. When inserted deeply into the drive, the loading mechanism grasps the disc and pulls it fully into the drive.

Horizontal Orientation of the CD-ROM Drive

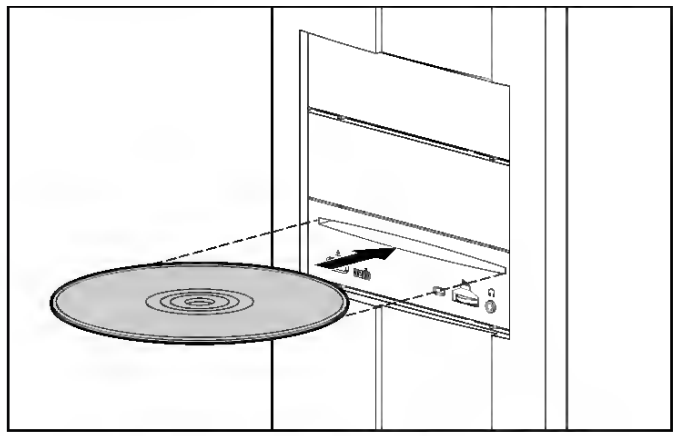


Figure 3-2. Loading a Compact Disc into a Horizontal CD-ROM Drive

Vertical Orientation of the CD-ROM Drive

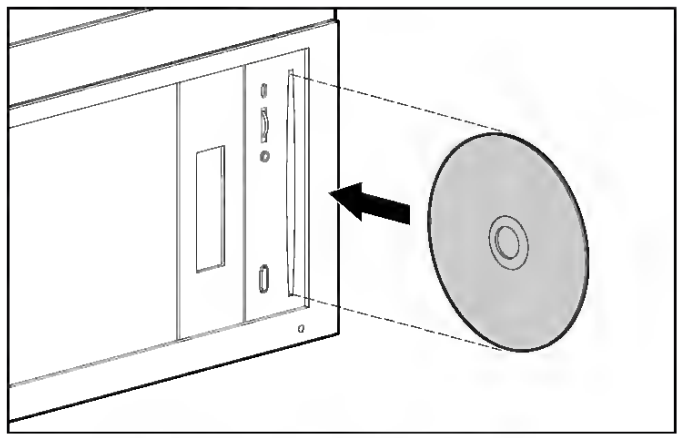


Figure 3-3. Loading a Compact Disc into a Vertical CD-ROM Drive

Precautions

Follow these precautions for the best care of your CD-ROM drive and discs.

Drive Precautions

- Keep the original packing materials for future transportation of the drive.
- Avoid exposing the drive to sudden changes in temperature, as condensation may form inside the unit. If the temperature suddenly changes while the drive is on, wait at least one hour before you turn off the power. If you operate the unit immediately, it may malfunction while reading.
- Avoid placing the drive in a location that is subject to high humidity, extreme temperatures, mechanical vibration, or direct sunlight.
- Make sure there is sufficient clearance for the disc to be ejected from the slot.

- Do not move the drive during operation. Doing so may cause it to malfunction during reading.
- Remove the disc before moving the drive.
- Clean the cabinet, panel, and controls with a soft, dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Never spray cleaning fluids directly on the unit.
- Any type of solvent, such as alcohol or benzene, may damage the finish.
- If any object or liquid falls into the cabinet, immediately unplug the computer and have it checked by a Compaq authorized service provider.

Disc Precautions

- Remove the disc from the drive before moving the unit.
- Do not drop the disc or subject it to physical shock.
- Do not put the disc in a location subject to dust, direct sunlight, extreme temperatures, or high humidity.
- Hold the disc by the edges, not by the flat surface.
- Do not use solvents, such as benzene or antistatic spray.
- Store the disc in its case after use.

Appendix A
Regulatory Compliance Notices

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (i.e., personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Declaration of Conformity for Products Marked with FCC Logo, United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. For questions regarding this declaration, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

Or call (281) 514-3333

To identify this product, refer to the Series number found on the product.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Canadian Notice (Avis Canadien)

Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

Japanese Notice

お使いになっている装置にＶＣＣＩマークが付いていましたら、次の説明文をお読み下さい。

この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。
しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。
取扱説明書に従って正しい取り扱いをして下さい。

ＶＣＣＩマークが付いていない場合には、次の点にご注意下さい。

この装置は、商工業地域で使用されるべき第一種情報装置です。　住宅地域又はその隣接した地域で使用するとラジオ、テレビジョン受信機等に受信障害を与えることがあります。

Australian Notice

This customer equipment is to be installed and maintained by service personnel as defined by AS/NZS 3260 Clause 1.2.14.3. Service Personnel. Incorrect connection of connected equipment to the General Purpose Outlet could result in a hazardous situation. Safety requirements are not fulfilled unless the equipment is connected to a wall socket outlet with protective earth contact.

Laser Devices

The CD-ROM drive contains a laser device. All Compaq systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light; the beam is totally enclosed during all modes of customer operation and maintenance.

Laser Safety Warnings

WARNING: To reduce the risk of fire, bodily injury, and damage to the equipment, observe the following precautions:

- Do not operate controls, make adjustments, or perform procedures to a laser device other than those specified herein or in the CD-ROM drive installation guide.

- Allow only Compaq Authorized Service Technicians to repair the laser equipment.

Compliance with CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

Compliance with International Regulations

All Compaq systems equipped with CD-ROM drives comply with appropriate safety standards including IEC 825.

Laser Product Label

The following label or equivalent is located on the surface of your CD-ROM drive.

This label indicates that the product is classified as a CLASS 1 LASER PRODUCT. This label appears on a laser device installed in your product.

Laser Information

Laser Type	Semiconductor GaAlAs
Wave Length	780 nm +/- 35 nm
Divergence Angle	53.5 degrees +/- 0.5 degrees
Output Power	Less than 0.2 mW /10,869 $W \cdot m^{-2} sr^{-1}$
Polarization	Circular 0.25
Numerical Aperture	0.45 inches +/- 0.04 inches

Appendix B
Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ± 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an Authorized Compaq Reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your Authorized Compaq Reseller.

Appendix C
Specifications

Specific dimensions and features for some of the components mentioned in this guide are listed here.

Compact Disc

Table C-1
Compact Disc

Feature		Details
Applicable Disc	CD-ROM	Mode 1 and Mode 2, mixed mode (audio and data combined)
	CD-DA	Ready
	CD-XA	Ready
	CDi	Ready
	Photo CD	Single and Multiple Session
Block Size	CD-ROM Mode 1	2048 bytes
	CD-ROM Mode 2	2340, 2336 bytes
	CD-DA	2352 bytes
	CD-XA	2328 bytes
Center Hole		0.6 in (15 mm) diameter
Disc Diameter		4.7 in, 3.1 in (12 cm, 8 cm)
Disc Thickness		0.05 in (1.2 mm)
Track Pitch		0.06 in (1 6 μm)

IDE CD-ROM Drive

Physical Characteristics

Table C-2
CD-ROM Drive Physical Characteristics

Feature		U.S.	Metric
Dimensions	Width	5.91 in	150.1 mm
	Height	1.69 in	42.9 mm
	Depth	8.19 in	208.0 mm
Weight		2.65 lb	1200 g

Power Requirements

Table C-3
CD-ROM Drive Power Requirements

Power Requirement	Details
+5 VDC +/- 5%	Ripple 100 mVp-p Current 450 mA (typ) 1800 mA max
+12 VDC +/- 5%	Ripple 200 mVp-p Current <1800 mA (seek, spinup)

Performance

Table C-4
CD-ROM Drive Performance

Feature		Details
Audio Output Level	Line out	0.7 V rms
Cache/Buffer	Minimum	128 Kbytes
Error Rates	Soft error	10^{-9}
	Hard error	10^{-12}
	Seek error	10^{-6}
Interface Cable Length	Maximum	18 in (45.7 cm) 26 in (65.0 cm)
Start-up Time		<7 seconds per single session
Stop Time		<4 seconds
Access Time		<85 ms (random read typical) <150 ms (fullstroke read typical)
Data Transfer Rate		150 Kb/s sustained 1X audio 1500 - 3600 Kb/s 10x to 24x variable, with 650 MB CD disc

Appendix D
Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information with the following help facilities.

Self-Help Tools

Compaq offers comprehensive self-help information tools that link you with a wide variety of Compaq support programs.

Online Support

Compaq technical support areas are accessible on the Internet and the three leading commercial online networks. These electronic communities allow you direct access to Compaq technical information on products and services, 7 days a week 24 hours a day. As a subscriber to any one of these networks, you can exchange technical information and questions with other Compaq users, as well as download software solutions, drivers, and utilities.

Internet Access

- E-Mail address: support@compaq.com
- Anonymous FTP site: ftp.compaq.com
- WorldWide Web Server: http://www.compaq.com

Online Networks

- America Online: 1-800-827-6364
  Extension 0948 COMPAQ
- CompuServe: 1-800-524-3388
  Operator #371 GO COMPAQ
- Prodigy: 1-800-776-3449
  Extension 68 JUMP COMPAQ

PaqFax

Dial 1-800-345-1518 to access Compaq's fax retrieval service. Via your touch-tone phone, product features, configurations and specifications, service program information, press releases, and the latest Compaq news are available directly to your fax, 365 days a year, 24 hours a day.

Compaq Download Facility

Dial 1-281-378-1418 to access the Compaq Download Facility. This PC-based dial-in service allows you to download drivers, utilities, and software solutions from Compaq via modem. To expedite the download of a file, you should already know the name of the file you need (from a Compaq Technical Support Engineer, another Compaq user, or a Service Advisory).

QuickFind

QuickFind is a subscription service offered by Compaq that provides access to a comprehensive CD-ROM library, including Maintenance and Service Guides, Service Advisories and Bulletins, technical reference guides and more. To order a subscription to QuickFind, dial 1-800-952-7689.

Telephone Support

You can contact Compaq directly for personal assistance, 7 days a week, 24 hours a day, using the following phone numbers.

Customer Support

For pre-sales product specifications, service program updates, and Compaq Authorized Reseller information:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868

Technical Support

For expert technical diagnosis and troubleshooting:

- In the United States and Canada, call 1-800-386-2172
- Elsewhere, call one of the following numbers:

Compaq Worldwide Technical Support Telephone Numbers

Location	Voice	FAX
APD	65-7503030	65-7504909
Argentina	54-1 313 3100	54-1 313 3100 Ext 21
Australia	61-2-9911-1955	61-2-9911-1900
Austria	0222-87816-16	0222-87816-82
Bahrain	973-210-214	
Belgium	(02) 716-96-96	(02) 725-22-13
Brazil	55 11 5505-3600	55 11 5505-3922 Ext 4336
Location	**Voice**	**FAX**
Canada	1-800-386-2172	
Caribbean	1-800-345-1518	
Central America	281-378-2206	
Chile	562-274-3007	
China	86-10-834-6721	86-10-834-6713
Colombia	571-345-0266	571-312-0157
Czech Republic	42-2-232-8772	42-2-232-8773
Denmark	45-90-4545	45-90-4595
Ecuador	593-2504540	
Europe/Middle East/Africa	(49) 089-9933-2891	
Finland	9800-206-720 (+358-800-1-206720)	90-6155-9899 (+358-0-61559899)
France	(33 1) 41-33-4455	(33 1) 41-33-4263
Germany	0180-5-212111	089-9933-3399
Hong Kong	852-90116633	852-28671734
Hungary	36-1-201-8776	36-1-201-9696

Continued

Compaq Worldwide Technical Support Telephone Numbers Continued		
India	(91-80) 559-6023	
Italy	392-57-90300	392-575-00686
Japan	0120-101589	+81 3-5402-5959
Korea	82-2-523-3575	82-2-3471-0321
Malaysia	(603) 718-1636	
Mexico	(525) 229-7910	(525) 229-7988
Netherlands	06-91681616	06-8991116
New Zealand	649-307-3969	
Norway	22-072-020	22-072-021
Poland	48-2-630-3535	48-2-630-3553
Portugal	351-1-4120132	351-1-4120654
Singapore	65-7503030	65-7504909
South Africa	+27-11-728-6999	+27-11-728-3335
Spain	341-640-1302	341-640-0124
Sweden	(46) 8 703 5240	(46) 8 703 5222
Switzerland	411 838 410/2222	01-837-0969
Taiwan	(886) 2-3761170	(886) 2-7322660
Thailand	62-2-679-6222	62-2-679-6220
United Kingdom	44-81-332-3888	44-81-332-3409
United States	1-800-386-2172	1-800-345-1518
Venezuela	(582) 953.69.44	(582) 952.86.70

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